(OCLP 2004)

APPENDICES

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APPENDIX A: SUMMARY OF COMMENTS PROVIDED DURING SCOPING ACTIVITIES

The following is a summary of suggestions offered and concerns raised by members of the public during the scoping activities conducting for the Forest Management Plan:

Related to Cultural Resources

- What effect will forestry activities have on the remnant stone walls and fences throughout the Park?
- The overall diversity of the Park's forest is an important part of its history; provides excellent opportunities for interpreting the history of land practices; and offers unique ecological benefits. How will the diversity of the Forest be continued if large-scale reforestation and forest succession (changes from agricultural fields to forest) are no longer occurring?
- What effect will forestry activities have on the condition of the carriage roads and trails as well as their associated culverts, causeways, and retaining walls?
- If the understory is suppressed in stands alongside the carriage roads, will this affect the overall health of the Forest?
- How can viewsheds be managed when forest openings extend to adjacent properties?
- Archeological resources should be identified and protected: The Park should complete the Level I archeological survey for which it was funded for FY04.
- Management of legacy trees will be a challenge as the forest canopy continues to grow. Consider identifying and cultivating replacements; consider a version of "crop tree release" to promote new legacy trees.
- Plantations:
  - Which plantations are integral to the cultural landscape?
  - Will some of the plantations be converted/ let go to native hardwoods?
  - How will plantations be managed to preserve historic characteristics, especially considering the competition of native hardwoods and the natural lifespan of the plantation trees?
  - Will plantations be managed as even- or uneven-aged?
  - Will native or non-native species be used for replanting?
  - Will new plantations be created to keep this type of forest management represented on the property?
  - Manage for big, well-spaced plantation trees (i.e., like in Mansion Grounds area); this also creates late-successional forest characteristics that benefit wildlife.
  - How will plantation management be balanced with ecological objectives?
- Will the McKenzie orchard be retained?
- Hardwood and mixed forest stands: Manage the Forest for a diversity of hardwood and mixed forest stands throughout the Park and for large trees within stands.

Related to Natural Resources and Ecological Health

- Follow Vermont Acceptable Management Practices; Examine Maine and other state Best Management Practices.
- Buffer vernal pools, particularly those with Jefferson salamanders, using Maine BMPs or other more extensive standards; follow silvicultural guidelines established by Maine BMPs for Vernal Pools for forestry activities within those areas.
- Convert plantations that are within "Jefferson salamander life zones" of vernal pools to hardwood forests.
- For treatments in vernal pool buffer areas: Schedule forest treatments for winter when the ground is frozen; and if that is not possible, times from July onward would be better.
- Re-forest the northern edge of the Maple Lot to increase the stream buffer.
- Keep coarse woody debris in stream areas.
- Observance of good watershed management practices (i.e., mitigating measures to reduce soil loss, compaction, and nutrient loss) will result in more vigorous forest health.
- Increase coarse woody debris (CWD) and snags throughout the Park; favor larger logs that decay more slowly; develop a tiered approach to removal of CWD next to roads and trails; manage for a diversity of decay classes.
- Low-intensity silviculture may have increased rates of successional development in hardwood and mixed forest stands; forest management could continue to be used to promote old-growth characteristics.
- Managing for "big trees" will increase forest structural diversity and wildlife habitat, and fits nicely with cultural landscape objectives.
- How can aesthetic management considerations be met while still addressing ecological considerations? (i.e., road corridor management)?
- Maintain and increase diversity of all kinds; landscape, forest stands, species.
- Is the impact of deer browse reducing the structural and species diversity of forest stands?
- Develop an approach to deal with invasive plants and the possible impacts of forestry on their distribution.
- Will some of the natural communities have different management approaches or protection status based on unusual attributes or landscape-level considerations?
- How and when would the Park use pesticides or biological controls to treat forest pests?
- Beech bark disease is prevalent throughout the Forest: Loss of beech could impact the late-successional forest structure, and reduce the availability of beech nuts, an important food source for wildlife.
- Promote herbaceous growth of fields, especially in the Maple Lot, by only cutting every two to three years; on the other hand, mowing once a year is best for insects.

- Consider putting up bat boxes for habitat enhancement and educational potential.
- Favor the retention of mast trees.
- Can a mowing schedule be developed that considers the nesting times of grassland birds and results in quality hay production?
- Develop a hazard tree program so that trees that would provide excellent wildlife habitat aren't being removed needlessly.
- Develop forest health inventory and monitoring program, and an early detection system.
- How will hemlock woolly adelgid, emerald ash borer, sudden oak death, etc. be addressed if they were to be found at the Park?
- What will be the Park's response to catastrophic loss of an area due to wind, fire, etc.?
- Develop a wildland fire response strategy.
- Develop an alternative to consider the effects of global warming and include greater representation of southern species (e.g., oaks, hickories, etc.).

Related to Sustainable Management Practices

- The long-term management has resulted in a healthy forest that exhibits sound conservation and considerable human manipulation; the Park should continue this record of stewardship.
- Develop approaches for demonstrating the full cycle of forestry: i.e., milling on-site, create solar kiln for wood-drying, work with local producers to develop value-added products.
- Forest management has always been an important part of the property and needs to continue.
- Meet and exceed Vermont Current Use standards
- Beech bark disease is a major issue, and eradicating it will be an arduous endeavor. A strategy will be needed in areas such as Stands 39 and 44 along the Mountain Road.
- Use a variety of harvesting techniques depending on the situation, and to increase educational value of forestry operations at the Park.
- Plantations are seen as both unhealthy forest management (i.e., not ecologically diverse, subject to catastrophic loss, etc.) and a method of high-production forestry (growth of large volume of wood on a small acreage) that allows other areas to be preserved.
- If deer browse pressure is high, it could affect the health and quality of any regeneration.
- Make wood available to historic preservation projects: The quality of trees at the Park is very unique and replicates wood qualities that can no longer be found for historic rehabilitation projects.
- Harvesting should be conducted at sustainable levels; the Park should assess growth and yield.

- Historical practices that conflict with contemporary conservation should be modified to represent good stewardship.
- Reintroduce sugaring.

Related to Education and Interpretation

- Visitors tend to notice distinct remnant features related to the property's land use history, such as rock walls, open-grown trees, stone markers.
- The Pogue is an important interpretive spot for discussing ecological and cultural history.
- Keep examples of earlier forestry practices, even if they are no longer considered "best management," because they illustrate changes in thinking and can serve as examples of what is not good forestry now (i.e., keep portions of the 1952 red pine plantation).
- Reintroduce a "nature trail" - i.e., the Wildflower Walk near the Woodbarn, or Elizabeth Billings' woodland gardens.
- Have a place to see succession in action.
- Develop trail maps/ wayside exhibits on historic land use changes.
- Use "tensions" in resource management to explore the theme of conservation.
- Show by example: The Park's management work should be a model of good forestry and stewardship.
- The Park offers a unique opportunity to educate the public about the complexities of forest management (recreation, wood use, forest health, ecological considerations, etc.).
- Establish an outreach program that would take the message beyond Park boundaries.
- Build the educational relationship with local schools through the Forest for Every Classroom program. Perhaps establish plots in the Forest that they can monitor for changes in the forest, and revisit throughout their time in school (i.e., K-12 experiences).
- Create opportunities for students to get involved in monitoring, research, planting, forest management, trails, etc.
- Initiate an "adopt-a-tree" program that encourages students to observe changes in their tree through the seasons.
- Develop programs that create linkages between Park staff and teachers; resource professionals, community members, teachers, and students; high school and elementary students.
- Enhance opportunities for year-round exploration of the Forest (e.g., an education classroom for students to come in out of the cold, winter interpretive hikes).
- Create service-learning opportunities through after-school and weekend programs.
- Provide access to facilities for school groups - restrooms, a place to get out of the rain.

- Hold an annual gathering of teachers at the Park to discuss opportunities for educational programs and send announcements to teachers about upcoming forest management activities that their classes can get involved in.
- Continue to offer professional training opportunities to teachers to increase their skill in using the Park as an outdoor classroom.
- Ranger-led tours typically begin at Prosper Road and head to The Pogue before looping back. Public workshops and ranger tours are a key interpretive tool.
- Forest management actions (i.e., leaving downed logs along the roads, vernal pool management, plantation retention) could be important from an educational point of view.

Related to Visitor Use and Recreation

- The Park has two main entrances that change seasonally in degree of use. The Pogue and the South Peak are the main destinations. Predictably, local visitors tend to use the Prosper Road entrance while out-of-towners gravitate to the Mansion entrance.
- It will be important to articulate the balance between providing recreation opportunities and practicing good forestry.
- Road and trail maintenance is an important part of the Forest's management and should continue with its current high level of care.
- Are there maintenance differences between winter ski needs and summer trail uses?
- Wayfinding would be improved by better and more trail signs
- Getting far into the Forest can be physically challenging for some visitors.
- What effect will forestry activities have on equestrian users?
- With increased pressures on public lands, examples are needed for how forestry and recreation can co-mingle.
- What impact will forest management activities have on recreationists if segments of trails need to be closed while forestry work is occurring?
- A message board announcing when forestry activities are planned or are occurring will be helpful so that hikers and horseback riders can choose alternative routes to use.
- How will increased vehicle use in the Park for management needs (i.e., logging trucks) impact recreational experiences?
- The Park should try to retain the diversity of trail experiences that exist and the year-round use of trails.
- Can winter harvesting be accommodated with recreational skiing?

Related to Watershed and Community Connections

- Work with adjacent landowners to continue to foster common goals such as: habitat improvement for Jefferson salamanders, invasive plant management, diverse regional recreational opportunities, etc.
- How will changes in land-use patterns in the area affect the Forest?

- Value that the Park is the community's "backyard."
- Work with the Woodstock Conservation Commission for plan review and community forums.
- Create a successful model of cooperation and engagement with the community.
- Work with state and community organizations on common interpretive programs and management activities.

Related to Adaptive Management

- Work with NPS Inventory and Monitoring Program.
- Evaluate the impacts of various management practices and determine if actions are meeting the goals of sustainability and other objectives (i.e., effects on hydrology and biogeochemistry, erosion, growth rates and forest health, yield of forest products, etc.)/
- Tie inventory and monitoring data to GIS.
- Make monitoring interdisciplinary: Include monitoring of trends related to ecology, recreation, silviculture, interpretation, cultural landscape preservation.
- Reassess silvicultural inventories about every five years
- Continue with forest dynamic monitoring program, with resampling every three to five years.
- Develop and demonstrate a model that can be used by other managers and landowners.
- Engage other staff, community members, school groups, and local universities in the implementation of an adaptive management program.
- Develop a bulletin to share information about monitoring trends and management activities.
- Develop an activity reporting and harvesting form to track management actions.
- Potential research studies:
  - Coarse woody debris management
  - Impacts of compaction
  - Effects of plantation conversion on wildlife
  - Vernal pool management
  - Dendrochronology
  - Additional oral histories

Appendix B: Proposed Northeast Temperate Network Vital Signs and Measures

The following are proposed Northeast Temperate Network vital signs and measures likely to be implemented at Marsh-Billings-Rockefeller National Historical Park. Bold and numbered indicates core vital signs the network should include in the initial phase of protocol development. Non-bold vital signs are a high priority and will be included over time as the cost of program development and implantation are realized. Potential Measures in italics will be investigated for inclusion in the Program as part of the development of the monitoring implementation plans, currently underway.[1]

Table B-1
Proposed Northeast Temperate Network Vital Signs and Measures Likely to be Implemented at the Park

Level 1	Level 2	Network Vital Sign	Potential Measures
Air and Climate	Air Quality	**Ozone**	Atmospheric ozone concentration (synthesize existing data) (*foliar injury to indicator species*)
		Acidic deposition & stress	Wet and dry deposition rates (synthesize existing data), soil nitrification, soil base cation availability, soil Ca:Al ratio, streamwater ANC, streamwater nitrate concentration (*total deposition rates including occult*)
		Contaminants	Heavy metal deposition (synthesize existing data)
	Weather and Climate	**Climate**	Air temperature, precipitation by type, relative humidity, total solar radiation, wind speed, wind direction, snow water equivalent, snow depth
		Phenology	First flowering of sensitive plant species, first amphibian call dates, length of growing season, ice-out/in dates for lakes and ponds
Water	Hydrology	**Water quantity**	Water depth, water duration, lake levels, streamflow, groundwater levels/inputs, spring/seep volume, sea level rise
	Water Quality	**Water chemistry**	Stream water nitrate, stream alkalinity/ANC, water temperature, percent dissolved oxygen, specific conductance, pH, turbidity, color, salinity, chlorophyll a, photosynthetically active radiation (PAR)
		Nutrient Enrichment	Turbidity, number of septic systems in and near park, algal biomass, total and dissolved phosphorus, amount of fertilizer used within park, residential density near park
		Streams – macro-invertebrates	Diversity of selected communities and subcommunities
		Contamination	Concentrations of relevant EPA priority pollutant metals

Table B-1
Proposed Northeast Temperate Network Vital Signs and Measures Likely to be Implemented at the Park

Level 1	Level 2	Network Vital Sign	Potential Measures
Biological Integrity	Invasive Species	**Exotic plants: early detection**	Presence/absence
		Exotic animals: early detection	Presence/absence
	Focal Species or Communities	**Wetland: vegetation**	Diversity of community and subcommunities, exotic species extent, beaver activity
		Forest: vegetation	Community diversity (all layers), tree species, rates of mortality and regeneration, stand structural dynamics, tree basal area by species, canopy condition, snag density, coarse woody debris volume; percent exotic species
		Fish: lakes and streams	Diversity of community and subcommunities; percent exotic species.
		Breeding birds	Diversity of forest, high elevation, grassland/scrub, old-field, and coastal communities and subcommunities
		Amphibians and Reptiles	Diversity of wetland/vernal pool communities and subcommunities (*red-backed salamander abundance in forests*)
		White-tailed Deer herbivory	Browse intensity in forests
		Insects	Selected indicator groups: *Pollinators (bees), decomposers (burying beetles), carabids, ants, odonates, butterflies and skippers*
Human use	Visitor and Recreation Pressure	**21) Visitor Usage**	Number of visitors by location and activity, trampling impacts, soil erosion
	Consumptive Use	Harvesting: Forestry	(*Board feet removed by species, cords removed by species*)
Ecosystem Pattern and Processes	Land Cover Land Use	**22) Land Cover / Ecosystem Cover**	Change in area and distribution of ecological systems (including intertidal communities) within park and adjacent landscape, patch size distribution, patch connectivity, patch fragmentation, extent of major disturbance, ecological integrity index by ecological system
		23) Land Use	Road network extent, nearby housing development permits, proportion of nearby lands in various categories of human uses, percent impervious surface in watershed, nearby human population density, landscape buffers
	Extreme Disturbance Events	Extreme Disturbance Events	Extent and duration of large-scale natural and anthropogenic disturbances

Appendix C: System-wide Management Guidelines

BEST MANAGEMENT PRACTICES FOR STREAMS, SEEPS, VERNAL POOLS, AND THE POGUE SHORELINE[2]

Streams, Seeps, and the Pogue

In most cases, state Acceptable Management Practices (AMPs) and Best Management Practices (BMPs) recommend a streamside buffer zone of a varying distance depending on the slope of the adjacent area. This zone of vegetation, also known as a buffer or protective strip, prevents sedimentation from reaching streams, and maintains shade and streambank stability.[3] The following buffer distances will be observed during any harvesting activities at the Park that are near streams or other water bodies, including The Pogue.

Forestry Practices within the Buffer Zone:

- There will be no new roads or landings
- Only light thinning or selection harvesting will take place, so that breaks in the canopy are infrequent.
- Exposure of mineral soil (especially by equipment) will be minimized.
- Coarse woody debris and snags will be maintained throughout the buffer zone, unless this conflicts with public safety or historical objectives.

Table C-1
Management Guidelines for Streams, Seeps, and the Pogue During Harvests

Slope of Land Between Roads or Landings and Streambanks or Lake Shores (in Percent)	Width of Strip Between Roads or Landings and Stream or Water Body (Feet Along Surface of Ground)
0-10	50[4]
11-20	70[5]
21-30	90[6]
31-40	110[7]
Pogue Stream (variable slope)	200[8]
Note: For slopes above 40 percent, an additional 20-foot buffer width will be used for each additional 10 percent slope.	

Vernal Pools

Several vernal pools at MABI host amphibian populations, including Jefferson salamander, a species listed as being a regional conservation concern by the Northeast Endangered Species Technical Committee.[9] The Park will protect vernal pool habitat when performing forestry activities.

The Park will follow best management practices developed jointly by the University of Maine, Maine Audubon, Maine Department of Inland Fisheries

and Wildlife, Maine Department of Conservation, and the Wildlife Conservation Society, and published by the Metropolitan Conservation alliance.[10] These guidelines will be augmented with site-specific life zone buffer distance recommendations developed through an in-depth Jefferson salamander study conducted by the Vermont Institute of Natural Science.[11]

Based on a combination of the Maine guidelines and the site-specific data, a tiered approach to the vernal pool management zone will be employed:

Table C-2
Management Guidelines forVernal Pools during Harvests

Vernal Pool Management Zone	Width	Best Management Practices [12]
Depression	Site-specific	No disturbance
Protection Zone	100' (30.5m) from pool's edge[13]	Limited harvesting Maintain at least 75 percent canopy cover Harvest during frozen or dry soil conditions Maintain abundant coarse woody debris Minimize use of heavy machinery
Life Zone	656' (200m) from pool's edge[14]	Partial harvesting Maintain 50 percent canopy cover, or more Openings no larger than 1 acre Harvest during frozen or dry conditions Maintain abundant coarse woody debris

COARSE WOODY DEBRIS AND SNAGS

Under all of the alternatives, specific management actions that could be used to maintain or increase the amount and diversity of downed CWD and snags include:

- Retain live trees of various sizes and types beyond their normal "maturity age."[15] As these trees age, decay, die, and fall to the forest floor, they will be contributing to an increase in both standing and downed material.
- Leave treetops and sections of bole that result from harvesting and natural mortality on the forest floor.

When a clear understory appearance is desirable to achieve cultural landscape management objectives, the Park will integrate CWD management using the following guidelines:

- Downed trees will be removed in the immediate vicinity of carriage roads (where visible within 50 feet). However, large-diameter logs may be retained. Logs will be limbed so that only the trunk remains visible on the ground.
- Snags will be retained as long as they do not pose a risk to visitor safety, following the Park's Hazardous Tree Management Plan. In some cases, hazardous trees may be treated by removing the upper part of the tree

that poses the hazard and leaving a standing bole. This technique is also useful for retaining declining legacy trees that might otherwise be completely removed because they are hazardous.

- Logs removed from the carriage road corridor may be relocated to other areas of the Forest, especially within the 200m vernal pool buffers, to aid in restoring more desirable CWD levels in those areas.
- Slash within 15–30 feet of the ski and hiking trails will be lopped to 3 feet or lower in height.

HARVESTING PROCEDURES

Harvesting Equipment

In deciding what harvesting equipment to use for forest management activities, the Park will consider the following variables, including but not limited to:

- Slope and soil type: e.g., steepness and susceptibility to erosion and compaction.
- Access to and within the treatment area: e.g., width of skid trails, distance to the landing, and room to maneuver between trees within the stand.
- Forest products: e.g., type, quality, and quantity of wood to be removed and status of wood markets.
- Timing: e.g., season of harvest, and ability to complete the job within any given time constraints.
- Availability of equipment and skilled operators.
- Silvicultural objectives for treatment: e.g., scarification (soil disturbance often accomplished by skidding logs across the surface) contributes to the establishment of certain tree species including white pine (*Pinus strobus*). Where the establishment of a new generation of white pine is desired, a conventional skidding system is more desirable than a forwarding system, in which the wood is carried on the bed of a wheeled vehicle instead of being dragged across the surface.

There are many types of harvesting equipment including horse, four-wheel-drive tractor, crawler/bulldozer, skidder (both cable and grapple types), forwarder, cutter, de-limber, feller-buncher, and mechanical harvester. For many of these types of equipment, there are also various sizes, and many timber harvesting operations use several pieces in conjunction (e.g., a skidder and a crawler or a cutter and delimber). Each type of equipment has advantages and disadvantages, and each is best suited to certain site conditions and treatment activities. Flexibility in equipment choice is important to ensure that Park management objectives are met. It is also important to note that technologies are always changing and the Park will embrace new harvesting systems if they are deemed more appropriate for addressing management objectives than existing methods.

Access and Erosion Control (skid trails)

Skid trails allow movement of wood from the stand to the log landing. There are many skid trails already in place throughout the Park because of the long history of active forest management. Many of the existing skid trails are adequate for the Park's forest management activities, but in some situations it will be necessary to develop new trails or segments of trails. Construction of any new skid trails would avoid steep slopes and would proceed across the slope and not exceed grades above 20 percent whenever possible. However if higher grades are necessary, the length of the road above 20 percent will not exceed 300 feet.[16]

To control surface water runoff and soil erosion on new and existing skid trails, drainage structures would be spaced at varying distances depending on slope. See Recommended Spacing of Drainage Structures below.

Table C-3
Recommended Spacing of Drainage Structures

Slope (percent)	Spacing (feet)
1	400
2	250
5	135
10	80
15	60
20	45
25	40
30	35
40	30

Depending on the site conditions, drainage structures could include traditional culverts, pole culverts, broad-based dips, water bars, and temporary or permanent bridges. Traditional culverts are best used for diverting significant amounts of water under a skid trail, especially when the water source (e.g., seep or stream) is perpendicular to the skid trail. Pole culverts (constructed from sections of poles or logs and covered with planks) also allow water to pass under or through a skid trail but are easier to install and to remove if deemed unnecessary following the harvesting activities. Broad-based dips are gradually sloped declines in the road that allow water to be gently dispersed across the road surface and off the sides. They are best used on sections of trail where there is little slope and no streams or seeps are threatening to cross.

Because the well-developed network of carriage roads already crosses many streams and seeps that would otherwise need drainage structures, new culverts and broad-based dips will rarely be needed to control erosion during treatment activities. Along the typical skid trails throughout the Park, water bars will likely be the best drainage structure. They would be constructed during treatment activities

when necessary, finalized directly following completion of the treatment activities, and monitored and maintained until the scarified soil becomes revegetated. Additional erosion control techniques that can be used include "brushing in," which involves scattering brush across skid trails to limit erosion and discourage pedestrian use, and seeding. If seeding is necessary, the Park will use native plant seed mixes that are suitable to the site conditions (i.e., sun exposure, season of planting).

Access and Erosion Control

The carriage road system provides excellent access for logging trucks throughout the parcel, and it has been historically used for this purpose from Billings' time forward. The roads are capable of supporting a fully loaded ten-wheel log trucks, but not tractor-trailers. In a situation where wood markets dictate the use of a tractor-trailer (e.g., long distance to the mill), wood will have to be transported out of the Park using a ten-wheel truck and subsequently loaded onto a tractor-trailer for shipment to its destination.

The carriage road system has been well maintained. General maintenance activities will be developed in a separate plan for carriage road and trail maintenance, currently funded for 2005.

Winter Harvesting

Winter harvesting is sometimes desirable because it can reduce soil compaction and erosion, avoid potential impacts to sensitive habitat areas such as vernal pool buffer zones, and result in less abrasion damage to trees. For the New England area, winter harvesting periods are typically from December 1 through March 31 when soils are frozen and have adequate snow cover that can minimize compaction and rutting.

The Woodstock Resort Corporation retains an easement on most of the Park roads and trails for use as groomed cross-country ski and snowshoe trails. The ability for the Park to conduct winter harvests is limited to those activities that will not adversely affect the winter operations of the Woodstock Ski Touring Center.

The Park will work with the Woodstock Resort Corporation to identify opportunities to conduct winter forestry activities that will not hinder ski touring operations. At minimum, the Park may consider stockpiling cut logs in the vicinity of the treatment area during winter and removing them at the end of the ski season.

Temporary Road and Trail Closures

There are a number of situations in which the carriage roads and trails on Mount Tom would be temporarily closed to public use, such as:

- During periods when wet conditions exacerbate trail wear from pedestrians and equestrians.
- When maintenance and repair activities make the roads or trails impassable to foot or horse traffic.
- While forest management operations are underway to prevent potential conflicts between pedestrians, equestrians, and forestry equipment.
- After natural events (e.g. wind and ice storms) that cause trees to fall across roads or trails.

Prior and during roads and trails closures, the Park will announce details about the closure (e.g., the area closed, duration that the closure is expected) to visitors through announcements posted at Park visitor centers and trailhead kiosks. Extended closures from forestry operations or seasonal trail conditions will also be provided through the Park's automated voicemail system (802.457.3368) and on the web (www.nps.gov/mabi).

Appendix D: Description of Forest Stands

Table D-1
Description of Forest Stands

Cover Type	Stand Number	Forest Type	Acres	Date Initiated	Stand Structure	Stocking
Natural Stands	5	Mixed pioneer	57.4	1950s	even	well
	6	White pine	5.2	1940s	even	well
	7	Eastern hemlock	2.6	1900 - 1930s	even	well
	8	White pine	9.7	1930s - 1940s	even	well
	9	Sugar maple/white ash	2.6	1940s	even	well
	10	Sugar maple	6.7	1940s - 1960s	even	over
	11	Sugar maple	3.9	1800s - 1940s/1950s	even	over
	14	Mixed pioneer	3.4	1920s	even	over
	15	White pine/black cherry	2.1	1930s	even	well
	19	Mixed hardwood	4.2	1900	even	over
	20	Sugar maple/mixed hardwood	14.8	1900	even	over
	21	Eastern hemlock/mixed hardwood	31.1	late 1800s - 1920s	even/uneven	over
	23	Big-toothed aspen/sugar maple	0.5	1930	even	over
	24	Sugar maple/mixed hardwood	24.4	1920	even	over
	29	Eastern hemlock/mixed hardwood	13.1	1890	natural	no data
	30	Mixed hardwood	15.7	1900 and before	even	over
	31	Mixed hardwood	16.2	late 1800s - early 1900s	even	over
	32	Sugar maple	3.5	before 1900	even	well
	33	American beech/sugar maple	14.8	late 1800s	even	well
	34	Mixed hardwood/eastern hemlock	30.0	late 1800s	even	well
	36a	Red maple/black ash swamp	0.4	no data - late 1800s	n/a	n/a
	36b	Red maple/black ash swamp	1.8	no data - late 1800s	n/a	n/a
	36c	Red maple/black ash swamp	2.0	no data - late 1800s	n/a	n/a
	36d	Red maple/black ash swamp	0.9	no data - late 1800s	n/a	n/a
	36e	Red maple/black ash swamp	0.4	no data - late 1800s	n/a	n/a
	37a	Mixed hardwood/eastern hemlock	2.2	before 1900	uneven	over
	37b	Mixed hardwood/eastern hemlock	6.8	before 1900	uneven	over
	38a	Eastern hemlock	7.6	before 1900	uneven	over
	38b	Eastern hemlock	1.2	before 1900	uneven	over
	39	Mixed hardwood	83.4	1920s	even	over
	44	Mixed hardwood	28.9	before 1900	even	over
	51	Sugar maple	1.8	1890s	even	no data

Table D-1
Description of Forest Stands

Cover Type	Stand Number	Forest Type	Acres	Date Initiated	Stand Structure	Stocking
Plantations	1	European larch/mixed hardwood	6.8	1887	even	over
	2	White pine/Norway spruce	10.2	1887 - 1910/1911	uneven	well
	3a	Norway spruce	3.1	1887	even	almost over
	3b	Norway spruce	1.2	1887	even	almost over
	4	Red pine	16.3	1952	even	over
	12	Mixedwood/apple	1.6	1890s - 1940s	even	n/a
	13	Norway spruce	4.4	1950	even	well
	16	Scots pine	1.6	1917	even	well
	17	Red pine	21.0	1917	even	over
	18	White pine	22.2	1905	even	adequately
	22	Scots pine	2.1	1930	even	well
	25	Scots pine/mixedwood	1.9	1917	even	well
	26	Red pine	6.5	1917	even	well
	27	Norway spruce/mixedwood	4.0	1896	even	well
	28	Norway spruce	1.4	1913	even	well
	35a	White pine	0.7	1911	even	adequately
	35b	White pine	4.1	1911	even	adequately
	40	Mixedwood	5.4	1897	uneven	well
	41	White pine/Norway spruce	3.8	1911	even	well
	42a	Norway spruce	2.6	1882	even	well
	42b	Norway spruce	1.0	1882	even	well
	43	Mixedwood	2.0	1880s	uneven	well
	45	White pine/mixedwood	15.9	1880s	uneven	well
	46a	White pine/Norway spruce	1.6	1880s and various	uneven	well
	46b	White pine/Norway spruce	5.9	1880s and various	uneven	well
Grounds and Garden	0	--	9.9	before 1900	n/a	n/a
Hayfields	49a	Hayfield	16.6	before 1900	n/a	n/a
	49b	Hayfield	3.3	before 1900	n/a	n/a
	49c	Hayfield	5.1	before 1900	n/a	n/a
	49d	Hayfield	1.9	before 1900	n/a	n/a
Open fields	50a	Open field	1.0	before 1900	n/a	n/a
	50b	Open field	3.3	before 1900	n/a	n/a
Upland Pasture	48	Pasture	11.2	before 1900	n/a	n/a
Open water	47	Open water	14.2	before 1900	n/a	n/a

*

Endnotes for Appendices

[1] Shiver et al. 2004.
[2] These recommendations were developed through a review of Acceptable Management Practices (AMPs) and Best Management Practices (BMPs) of the northern New England states, and recommendations developed through site-specific studies. New Hampshire (New Hampshire Division of Forest and Lands 1991), Vermont (Vermont Department of Forests, Parks, and Recreation 1987), and Maine (Maine Forest Service 2004) all recommend similar buffer zones distances. Vermont and New Hampshire use the same guidelines for buffer distances; and these were used to set the baseline guidelines for the park. The following sources were reviewed in the development of the management specifications for the park: Calhoun and deMaynadier 2004; Faccio 2001; Faccio 2003; Maine Forest Service (Maine Department of Conservation) 2004; New Hampshire Division of Forests and Lands 1991; Semlitsch 1998; Vermont Department of Forests, Parks, and Recreation 1987; Kittredge and Parker 2000; Hunter, Calhoun, and McCullough(eds). 1997; Bryan 2003; New Hampshire Division of Forests and Lands 1997.
[3] Vermont Department of Forests, Parks, and Recreation 1987.
[4] Vermont Department of Forests, Parks, and Recreation 1987.
[5] Vermont Department of Forests, Parks, and Recreation 1987.
[6] Vermont Department of Forests, Parks, and Recreation 1987.
[7] Vermont Department of Forests, Parks, and Recreation 1987.
[8] Recommendations do not specifically address the needs of the amphibians that dwell in the main, year-round Pogue Stream, particularly populations of two-lined and northern dusky salamanders (Faccio 2001). Hence, the additional recommendations made by Faccio in his 2001 report were incorporated into MABI forest management policy.
[9] Based on both the biological inventory (Faccio 2001) and more recent research regarding postbreeding emigration and habitat use (Faccio 2003).
[10] Calhoun and deMaynadier 2004.
[11] Faccio 2003: Radio telemetry was used to track mole salamanders during the summer months. Postbreeding emigration varied greatly, from 30m/98 feet to 219m/719 feet. Based on the data gathered at MABI, 95 percent of the population was calculated to remain within a zone that extends 157m (515 feet) from the edge of a vernal pool. When data from MABI was combined with that from other studies (Semlitch 1998), a somewhat larger zone, 175m(575 feet) was found to encompass 95 percent of mole salamanders in summer. Based on these data, Faccio recommends a buffer of 200m (656 feet) around each vernal pool. This is more than the 100- to 400-foot life zone recommended in the amphibian habitat management guidelines (Calhoun and deMaynadier 2004).
[12] Calhoun and deMaynadier 2004.
[13] Calhoun and deMaynadier 2004.
[14] Faccio 2003.
[15] Defined as the age at which the culmination of mean annual increment has occurred.
[16] VT AMPs, p.19.